

## **APPENDIX A**

### **TCEQ UIC Permits, TCEQ Well Authorization And EPA Final Petition Decision**





Texas Commission on  
Environmental Quality  
Austin, Texas

Permit No. WDW397  
This permit supersedes  
and replaces Permit  
No. WDW397 issued  
December 11, 2008.

PERMIT to conduct  
Class I Underground Injection  
under provisions of Texas Water Code,  
Chapter 27 and Texas Health and Safety Code,  
Chapter 361

I. Permittee

Exxon Mobil Corporation  
12450 Greenspoint Drive GSC GP6-10143  
Houston, TX 77060

II. Type of Permit

Initial \_\_\_\_\_ Renewal \_\_\_\_\_ Amended X  
Commercial \_\_\_\_\_ Noncommercial X  
Hazardous X Nonhazardous X  
Onsite X Offsite X  
Authorizing Disposal of Waste from Captured Facility \_\_\_\_\_  
Authorizing Disposal of Waste from Off-site Facilities Owned by Owner/Operator \_\_\_\_\_

III. Nature of Business

Disposal of pond water generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant.

CONTINUED on Pages 2 through 9

The permittee is authorized to conduct injection in accordance with limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission, and the laws of the State of Texas. The permit will be in effect until January 26, 2014 or until amended or revoked by the Commission. If this permit is appealed and the permittee does not commence any action authorized by this permit during judicial review, the term will not begin until judicial review is concluded.

#### IV. General Description and Location of Injection Activity

The disposal well is to be used to dispose of hazardous and nonhazardous wastes generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant. The well is located 1,450 feet east of the west line and 25,700 feet north of the south line of the James Seymore Survey, A-698, Latitude 29°44'27" North, Longitude 95°11'23" West, Harris County, Texas. The injection zone is within the Frio Formation at the depths of 5,325 to 7,250 feet below ground level. The authorized injection interval is within the Frio Formation at the depths of 5,900 to 7,250 feet below ground level.

#### V. Character of the Waste Streams

- A. Industrial hazardous and nonhazardous waste authorized to be injected by this permit shall consist solely of the following waste streams:
  1. Gypsum stack pond water (Gyp-Stacks #1, #2, #3, #4 and #5)
  2. Wastes generated during closure of the well and associated facilities that are compatible with permitted wastes, injection zone and the well.
  3. Other associated wastes such as ground water and rainfall contaminated by the above authorized wastes, spills of the above authorized wastes, and wash waters and solutions used in cleaning and servicing the waste disposal well system equipment which are compatible with the permitted waste streams, injection zone and well materials.
- B. The injection of wastes is limited to those wastes authorized in Provision V.A. above, into the Frio Formation within the injection zone between 5,325 to 7,250 feet below ground level.
- C. The pH of injected waste streams shall be greater than 1.0 and less than 8.0.
- D. Except when authorized by the Executive Director, the specific gravity of injected fluids shall be greater than or equal to 1.00 and less than or equal to 1.05 as measured at 68°F.

#### VI. Waste Streams Prohibited From Injection

Unless authorized by Provision V.A., the following waste streams are prohibited. The permittee is also required to comply with all other laws or regulations which are applicable to the activities authorized by this permit.

- A. Wastes prohibited from injection in 40 CFR Part 148, Subpart B, are specifically prohibited from injection by this permit, unless an exemption from prohibition has been granted pursuant to 40 CFR Part 148, Subpart C, or the wastes meet or exceed the applicable treatment standards in 40 CFR Part 268, Subpart D;
- B. Any by-product material as defined by Texas Health & Safety Code §401.003(3);
- C. Any low-level radioactive waste as defined by Texas Health & Safety Code §401.004;
- D. Any naturally occurring radioactive material (NORM) waste as defined by Texas Health & Safety Code §401.003(26); and
- E. Any oil and gas NORM waste as defined by Texas Health & Safety Code §401.003(27).

## VII. Operating Parameters

- A. The well shall be operated in compliance with the requirements of 30 TAC Chapters 305, 331, and 335; the plans and specifications of the permit application; and the following conditions.
- B. Surface injection pressure shall not cause pressure in the injection zone to:
  - 1. initiate any new fractures or propagate existing fractures in the injection zone;
  - 2. initiate new fractures or propagate existing fractures in the confining zone; or
  - 3. cause movement of fluid out of the injection zone that may contaminate underground sources of drinking water (USDWs), and fresh water.
- C. The operating surface injection pressure shall not exceed 1,500 psig.
- D. The maximum cumulative injection rate for WDW397 and WDW398 shall not exceed 1,200 gallons per minute.
- E. The cumulative volume of waste water injected into WDW397 and WDW398 shall not exceed 52,560,000 gallons per month, or 630,720,000 gallons per year.
- F. A positive pressure of at least 100 psig over tubing injection pressures shall be maintained in the tubing-casing annulus for the purpose of leak detection. Temporary deviations from this requirement which are a part of normal well operations are authorized but may not exceed 15 minutes in duration. For 15 minutes after the pressure differential drops below 100 psig, the permittee shall conduct troubleshooting and proceed to restore a minimum 100 psig pressure differential. If a minimum 100 psig pressure differential cannot be achieved within 15 minutes, the permittee shall notify the Texas Commission on Environmental Quality (TCEQ) and commence shut-in procedures on the well. The permittee may continue to operate the well under flow conditions that maintain a minimum 100 psig pressure differential.
- G. The permittee shall notify the Executive Director at least 24 hours prior to commencing any workover which involves taking the injection well out of service. Approval by the Executive Director shall be obtained before the permittee may begin work. Notification shall be in writing and shall include plans for the proposed work. The Executive Director may grant an exception to the prior written notification and approval when immediate action is required to prevent pollution according to 30 TAC §331.5. Completion of the well outside the approved injection interval, by perforation of casing, setting of screen, or establishment of open hole section, requires that the permitted injection interval be changed according to 30 TAC §331.62(3)(B) to include the depths of all well completion. Pressure control equipment shall be installed and maintained during workovers which involve the removal of tubing.

## VIII. Monitoring and Testing Requirements

- A. Monitoring and testing shall be in compliance with the requirements of 30 TAC §305.125, §331.64, the plans and specifications of the permit application, and the following conditions.
- B. The integrity of the long string casing, injection tubing, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover. The integrity of the cement within the injection zone shall be tested by

means of an approved radioactive tracer survey annually. A radioactive tracer survey may be required after workovers that have the potential to damage the cement within the injection zone.

- C. The pressure buildup in the injection zone shall be monitored annually, including at a minimum, a shutdown of the well for a sufficient time to conduct a valid observation of the pressure fall-off curve.
- D. A temperature log, noise log, oxygen activation log or other approved log is required at least once every five years to test for fluid movement along the entire borehole.
- E. A casing inspection, casing evaluation, or other approved log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Executive Director waives this requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Executive Director may require that a casing inspection log be run every five years if there is sufficient reason to believe the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.
- F. Injection fluids shall be tested in accordance with 30 TAC §331.64(a) and the approved waste analysis plan.
- G. The pH and specific gravity of the injected waste shall be monitored continuously at a minimum frequency of at least once every 24 hours and whenever the waste stream changes.
- H. Corrosion monitoring of well materials shall be conducted quarterly and in accordance with 30 TAC §331.64(f). Test materials shall be the same as those used in the wellhead, injection tubing, packer, and long string casing, and shall be continuously exposed to the waste fluids except when the well is taken out of service.
- I. The permittee shall ensure that all waste analyses utilized for waste identification or verification and other analyses for environmental monitoring have been performed in accordance with methods specified in the current editions of EPA SW-846, ASTM or other methods accepted by the TCEQ. The permittee shall have a Quality Assurance/Quality Control program that is consistent with EPA SW-846 and the TCEQ Quality Assurance Project Plan.

#### IX. Record Keeping Requirements

The permittee shall keep complete and accurate records as required by 30 TAC Chapters 305, 331, and 335.

#### X. Financial Assurance for Well Closure

In accordance with 30 TAC Chapter 37, 30 TAC Section 305.154(a)(9), and Sections 331.142-144, the permittee shall secure and maintain financial assurance, in a form approved by the Executive Director, in the amount of \$174,300 (in 2007 dollars). Adjustments to the cost estimates for plugging and abandonment in current dollars, and to financial assurance based thereon, shall be made in accordance with 30 TAC Chapter 37.

**XI. Additional Requirements**

- A. Acceptance of this permit by the permittee constitutes an acknowledgment and agreement that the permittee will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- B. This permit is subject to further orders and rules of the Commission. In accordance with the procedures for amendments and orders, the Commission may incorporate into permits already granted, any condition, restriction, limitation, or provision reasonably necessary for the administration and enforcement of Texas Water Code, Chapters 26 and 27, and Texas Health and Safety Code, Chapter 361.
- C. This permit does not convey any property rights of any sort, nor any exclusive privilege, and does not become a vested right in the permittee.
- D. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of state or local law or regulations.
- E. The following rules are incorporated as terms and conditions of this permit by reference:
  - 1. 30 TAC Chapter 305, Consolidated Permits;
  - 2. 30 TAC Chapter 331, Underground Injection Control; and
  - 3. 30 TAC Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste.
- F. The express incorporation of the above rules as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all other laws or regulations which are applicable to the activities authorized by this permit.
- G. Incorporated Application Materials. This permit is based on, and the permittee shall follow, the plans and specifications contained in the Class I Underground Injection Control Application dated March 25, 2003 as revised on June 5, 2003 and August 12, 2003, and the following amendments and modifications to the permit which are hereby approved subject to the terms of this permit and any other orders of the Texas Commission on Environmental Quality (TCEQ):

Permit Action	Application, Revision or Issuance Date	Description of Change
Minor Modification	Application dated December 20, 2005	Change permittee address
Major Amendment	Application dated July 24, 2006 and revised on September 9, 2006	Increase maximum injection rate and volume
Major Amendment	Application dated December 13, 2007 and revised on May 6, 2008	Addition of hazardous waste

Permit Action	Application, Revision or Issuance Date	Description of Change
Major Amendment	Applications dated April 13, 2009 and revised on August 5, 2009	Change permittee address and change the maximum injection rate and volume to a cumulative rate and volume for WDW397 & WDW398

These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission.

H. The existing pre-injection units are authorized under Texas solid waste registration (SWR) number 87314 for the management of nonhazardous waste only as required by 30 TAC §331.17. For the pre-injection units servicing this well to receive hazardous waste, the pre-injection units must be authorized under a Resource Conservation and Recovery Act (RCRA) permit [30 TAC Chapter 335] or exempt from the requirement for a permit under 30 TAC Section 335.69.

I. The Texas solid waste registration (SWR) number for this site is 87314.

## XII. Corrective Action for Solid Waste Management Units (SWMU)

### A. RCRA Facility Assessment (RFA)

In accordance with 40 CFR §270.60(b)(3), an evaluation of corrective action for releases from any solid waste management unit (injection well, pond, tank, etc.) is required and must address all releases of hazardous waste or 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit. The permittee shall conduct a RCRA Facility Assessment (RFA) based on U.S. EPA RCRA Facility Assessment Guidance, October 1986, NTIS PB 87-107769 and within 30 days of issuance of this permit submit completed Form TCEQ-00756, "Releases From Solid Waste Units And Corrective Action At A Hazardous Waste Disposal Well Facility With No RCRA Permit for Other Units (Supplement to Class I Injection Well Permit Application)", for approval. If the RFA indicates a release or suspected release warrants further investigation, the permittee shall comply with the requirements of Section XII.B. of this permit.

### B. Corrective Action Obligations

The permittee shall conduct corrective action as necessary to protect human health and the environment for all releases of hazardous waste and hazardous constituents from any SWMU. The permittee shall fulfill this obligation by conducting a Corrective Action Program which consists of a RCRA Facility Investigation (RFI) of the unit/area identified. The permittee shall conduct a RFI to determine whether hazardous waste or hazardous constituents listed in 40 CFR Part 261, Appendix VIII have been released into the environment. Upon completion of the RFI the Permittee shall submit to the TCEQ either a demonstration that no release occurred or an Affected Property Assessment Report (APAR) showing the vertical and lateral nature and extent of the release. If it is determined that hazardous waste or hazardous

constituents have been or are being released into the environment, then the permittee may be required to implement those activities listed in the Response Action Plan (RAP) to protect human health and the environment. Upon completion of the RAP implementation the permittee must submit to the TCEQ, a Response Action Effectiveness Report (RAER) which details the activity that will be taken to remove, decontaminate and/or control chemicals of concern (COC) which may be present at the facility in excess of critical Protective Concentration Levels (PCLs) in the environmental media. The report shall include actions taken in response to releases to environmental media from waste management unit(s) before, during, or after closure.

Upon Executive Director's review of the Corrective Action Program obligations, the permittee may be required to perform any or all of the following:

1. conduct investigation(s);
2. provide additional information;
3. conduct additional investigation(s);
4. investigate an additional unit(s);
5. proceed to the next task in the Corrective Action Program and/or;
6. submit an application for a new compliance plan or modification to an existing compliance plan to implement corrective measures.

Any additional requirements must be completed within the time frame(s) specified by the Executive Director.

C. Variance from Investigation

The permittee may elect to certify that no hazardous waste or hazardous constituents listed in 40 CFR Part 261, Appendix VIII and/or 40 CFR Part 264, Appendix IX are or were present/managed in a unit requiring an RFI in lieu of performing the investigation required in Sections XII.B. and D., provided that confirming data is submitted for the current and past waste(s) managed in the respective unit. The permittee shall submit such information and certification(s) on a unit-by-unit basis in the time frame required in Section XII.D. for review and approval by the Executive Director of the TCEQ. If the permittee cannot demonstrate and certify that hazardous waste or hazardous constituents are not or were not present in a particular unit, the investigation required in Sections XII.B. and D. shall be performed for the unit.

D. RCRA Facility Investigation (RFI)

Within sixty (60) days of approval of a RFA Report which recommends further investigation of a SWMU(s) or area(s) of contamination in accordance with Section XII.A., the permittee shall submit a schedule for completion of the RFI(s) to the Executive Director for approval. The permittee shall initiate the investigations in accordance with the approved schedule and shall address all of the items for RFI Workplans and RFI Reports contained in U.S. EPA

publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994. If the permittee elects to use an alternate investigation approach, Executive Director approval of the workplan will be required prior to initiation of investigation(s). The results of the RFI must be submitted to the Executive Director for approval within the time frame established in the approved schedule either as a demonstration that no release occurred or in the form of an APAR. The APAR must document results of the investigation(s). The report shall be considered complete when the full nature and extent of the contamination, Quality Assurance/Quality Control procedures and Data Quality Objectives are documented to the satisfaction of the Executive Director.

E. Response Action Plan (RAP)

Upon approval of the activities outlined in the APAR, if it is determined that there has been a release into the environment of hazardous waste or hazardous constituents listed in 40 CFR Part 261, Appendix VIII and/or 40 CFR Part 264 Appendix IX, which appears to be a risk to human health and the environment, then within the time frame(s) specified by the Executive Director following approval of the APAR, the permittee shall submit a RAP. This plan shall evaluate the risk, identify and evaluate corrective measure alternatives and recommend appropriate corrective measure(s) to protect human health and the environment. The RAP shall address all of the applicable items in 30 TAC 350 Subchapter B and Subchapter E and the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994.

1. Response Action Completion Report (RACR)

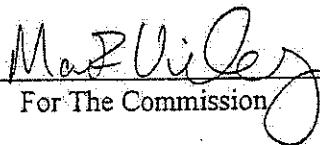
The permittee shall submit a RAP within the time frame required by the Executive Director, not to exceed one-hundred-eighty (180) days from the date of approval of the APAR. The RAP shall address all of the items for Corrective Measures Implementation (CMI) Workplans contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994. If the RAP does not propose a permanent remedy, then a RAP shall be submitted as part of a new compliance plan application or as a modification/amendment application to an existing compliance plan. The RAP shall contain detailed final engineering design and monitoring plans and schedules necessary to implement the selected remedy. Implementation of the corrective measures shall be addressed through a new and/or a modified/amended compliance plan. Upon installation of a corrective action system based upon the approved RAP, the permittee shall submit a RACR. Approval of the RACR places the SWMU in a status of conditional No Further Action, reflecting that the remedy is in place, controls must be maintained, and effectiveness must be monitored. To report the progress of the corrective measures, the permittee shall submit the Post-Response Action Care Report (PRACR) to the TCEQ in accordance with the schedule specified in the compliance plan to show the progress of actions taken.

F. Notification of Release From Solid Waste Management Unit  
(Texas Health and Safety Code, Section 361.303)

If a solid waste management unit (SWMU) or area of contamination not previously addressed in the RCRA Facility Assessment (RFA), or any release of hazardous waste or hazardous constituents that may have occurred from any SWMU and/or AOC, is discovered subsequent

to completion of the RFA required in Section XII.A., the permittee shall notify the Executive Director in writing within fifteen (15) days of the discovery. Within forty-five (45) days of such discovery, the permittee shall submit an RFA for that unit or release which shall be based on U.S. EPA RCRA Facility Assessment Guidance, October 1986, NTIS PB 87-107769. If the RFA indicates a release or suspected release warrants further investigation, the permittee shall comply with the requirements of Section XII. B. of this permit.

ISSUED: February 22, 2010

  
For The Commission



THE  
UNITED STATES  
DEPARTMENT OF  
THE ARMY  
WASHINGTON, D. C.  
OFFICE OF THE  
CHIEF OF STAFF  
MEMORANDUM FOR THE  
CHIEF OF STAFF  
SUBJECT: [Illegible]





Texas Commission on  
Environmental Quality  
Austin, Texas

Permit No. WDW398  
This permit supersedes  
and replaces Permit  
No. WDW398 issued  
December 11, 2008.

PERMIT to conduct  
Class I Underground Injection  
under provisions of Texas Water Code,  
Chapter 27 and Texas Health and Safety Code,  
Chapter 361

I. Permittee

Exxon Mobil Corporation  
12450 Greenspoint Drive GSC GP6-1014  
Houston, TX 77060

II. Type of Permit

Initial \_\_\_\_\_ Renewal \_\_\_\_\_ Amended X  
Commercial \_\_\_\_\_ Noncommercial X  
Hazardous X Nonhazardous X  
Onsite X Offsite X  
Authorizing Disposal of Waste from Captured Facility \_\_\_\_\_  
Authorizing Disposal of Waste from Off-site Facilities Owned by Owner/Operator \_\_\_\_\_

III. Nature of Business

Disposal of pond water generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant.

CONTINUED on Pages 2 through 6

The permittee is authorized to conduct injection in accordance with limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission, and the laws of the State of Texas. The permit will be in effect until January 26, 2014 or until amended or revoked by the Commission. If this permit is appealed and the permittee does not commence any action authorized by this permit during judicial review, the term will not begin until judicial review is concluded.

#### IV. General Description and Location of Injection Activity

The disposal well is to be used to dispose of hazardous and nonhazardous wastes generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant. The well will be located 1,200 feet west of the east line and 16,600 feet north of the south line of the William Vince Survey, A-78, Latitude 29°44'12" North, Longitude 95°11'53" West, Harris County, Texas. The injection zone is within the Frio Formation at the depths of 5,325 to 7,250 feet below ground level. The authorized injection interval is within the Frio Formation at the depths of 5,900 to 7,250 feet below ground level.

#### V. Drilling and Completion Requirements

- A. The drilling and completion of the well shall be done in accordance with 30 TAC §331.62, the plans and specifications of the permit application, and the following conditions.
- B. The permittee shall set and cement surface casing to a minimum subsurface depth of 3,250 feet, and long string casing into or through the injection zone in order to properly protect each underground source of drinking water (USDW) or freshwater aquifer.
- C. To protect the ground surface from spills and releases, the base of the wellhead shall be enclosed by a diked, impermeable pad or sump. Any liquid collected shall be disposed of in an appropriate manner.
- D. Mechanical integrity shall be demonstrated prior to authorization by the Executive Director to conduct injection operations.
- E. Any changes to the plans and specifications in the original application shall be approved in writing by the Executive Director that said changes provide protection standards equivalent to or greater than the original design criteria.

#### VI. Character of the Waste Streams

- A. Industrial hazardous and nonhazardous waste authorized to be injected by this permit shall consist solely of the following waste streams:
  1. Gypsum stack pond water (Gyp-Stacks #1, #2, #3, #4 and #5)
  2. Wastes generated during closure of the well and associated facilities that are compatible with permitted wastes, injection zone and the well.
  3. Other associated wastes such as ground water and rainfall contaminated by the above authorized wastes, spills of the above authorized wastes, and wash waters and solutions used in cleaning and servicing the waste disposal well system equipment which are compatible with the permitted waste streams, injection zone and well materials.
- B. The injection of wastes is limited to those wastes authorized in Provision VI.A. above, into the Frio Formation within the injection zone between 5,325 to 7,250 feet below ground level.
- C. The pH of injected waste streams shall be greater than 1.0 and less than 8.0.
- D. Except when authorized by the Executive Director, the specific gravity of injected fluids shall be greater than or equal to 1.00 and less than or equal to 1.05 as measured at 68°F.

## VII. Waste Streams Prohibited From Injection

Unless authorized by Provision VI.A., the following waste streams are prohibited. The permittee is also required to comply with all other laws or regulations which are applicable to the activities authorized by this permit.

- A. Wastes prohibited from injection in 40 CFR Part 148, Subpart B, are specifically prohibited from injection by this permit, unless an exemption from prohibition has been granted pursuant to 40 CFR Part 148, Subpart C, or the wastes meet or exceed the applicable treatment standards in 40 CFR Part 268, Subpart D;
- B. Any by-product material as defined by Texas Health & Safety Code §401.003(3);
- C. Any low-level radioactive waste as defined by Texas Health & Safety Code §401.004;
- D. Any naturally occurring radioactive material (NORM) waste as defined by Texas Health & Safety Code §401.003(26); and
- E. Any oil and gas NORM waste as defined by Texas Health & Safety Code §401.003(27).

## VIII. Operating Parameters

- A. The well shall be operated in compliance with the requirements of 30 TAC Chapters 305, 331, and 335; the plans and specifications of the permit application; and the following conditions.
- B. Surface injection pressure shall not cause pressure in the injection zone to:
  - 1. initiate any new fractures or propagate existing fractures in the injection zone;
  - 2. initiate new fractures or propagate existing fractures in the confining zone; or
  - 3. cause movement of fluid out of the injection zone that may contaminate underground sources of drinking water (USDWs), and fresh water.
- C. The operating surface injection pressure shall not exceed 1,500 psig.
- D. The maximum cumulative injection rate for WDW397 and WDW398 shall not exceed 1,200 gallons per minute.
- E. The cumulative volume of waste water injected into WDW397 and WDW398 shall not exceed 52,560,000 gallons per month, or 630,720,000 gallons per year.
- F. A positive pressure of at least 100 psig over tubing injection pressures shall be maintained in the tubing-casing annulus for the purpose of leak detection. Temporary deviations from this requirement which are a part of normal well operations are authorized but may not exceed 15 minutes in duration. For 15 minutes after the pressure differential drops below 100 psig, the permittee shall conduct troubleshooting and proceed to restore a minimum 100 psig pressure differential. If a minimum 100 psig pressure differential cannot be achieved within 15 minutes, the permittee shall notify the Texas Commission on Environmental Quality (TCEQ) and commence shut-in procedures on the well. The permittee may continue to operate the well under flow conditions that maintain a minimum 100 psig pressure differential.

- G. The permittee shall notify the Executive Director at least 24 hours prior to commencing any workover which involves taking the injection well out of service. Approval by the Executive Director shall be obtained before the permittee may begin work. Notification shall be in writing and shall include plans for the proposed work. The Executive Director may grant an exception to the prior written notification and approval when immediate action is required to prevent pollution according to 30 TAC §331.5. Completion of the well outside the approved injection interval, by perforation of casing, setting of screen, or establishment of open hole section, requires that the permitted injection interval be changed according to 30 TAC §331.62(3)(B) to include the depths of all well completion. Pressure control equipment shall be installed and maintained during workovers which involve the removal of tubing.

IX. Monitoring and Testing Requirements

- A. Monitoring and testing shall be in compliance with the requirements of 30 TAC §305.125, §331.64, the plans and specifications of the permit application, and the following conditions.
- B. The integrity of the long string casing, injection tubing, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover. The integrity of the cement within the injection zone shall be tested by means of an approved radioactive tracer survey annually. A radioactive tracer survey may be required after workovers that have the potential to damage the cement within the injection zone.
- C. The pressure buildup in the injection zone shall be monitored annually, including at a minimum, a shutdown of the well for a sufficient time to conduct a valid observation of the pressure fall-off curve.
- D. A temperature log, noise log, oxygen activation log or other approved log is required at least once every five years to test for fluid movement along the entire borehole.
- E. A casing inspection, casing evaluation, or other approved log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Executive Director waives this requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Executive Director may require that a casing inspection log be run every five years if there is sufficient reason to believe the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.
- F. Injection fluids shall be tested in accordance with 30 TAC §331.64(a) and the approved waste analysis plan.
- G. The pH and specific gravity of the injected waste shall be monitored continuously at a minimum frequency of at least once every 24 hours and whenever the waste stream changes.
- H. Corrosion monitoring of well materials shall be conducted quarterly and in accordance with 30 TAC §331.64(f). Test materials shall be the same as those used in the wellhead, injection tubing, packer, and long string casing, and shall be continuously exposed to the waste fluids except when the well is taken out of service.

- I. The permittee shall ensure that all waste analyses utilized for waste identification or verification and other analyses for environmental monitoring have been performed in accordance with methods specified in the current editions of EPA SW-846, ASTM or other methods accepted by the TCEQ. The permittee shall have a Quality Assurance/Quality Control program that is consistent with EPA SW-846 and the TCEQ Quality Assurance Project Plan.

X. Record Keeping Requirements

The permittee shall keep complete and accurate records as required by 30 TAC Chapters 305, 331, and 335.

XI. Financial Assurance for Well Closure

In accordance with 30 TAC Chapter 37, 30 TAC Section 305.154(a)(9), and Sections 331.142-144, the permittee shall secure and maintain financial assurance, in a form approved by the Executive Director, in the amount of \$174,300 (in 2007 dollars). Adjustments to the cost estimates for plugging and abandonment in current dollars, and to financial assurance based thereon, shall be made in accordance with 30 TAC Chapter 37. Financial assurance shall be obtained at least 60 days prior to the commencement of drilling of the well.

XII. Additional Requirements

- A. Acceptance of this permit by the permittee constitutes an acknowledgment and agreement that the permittee will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- B. This permit is subject to further orders and rules of the Commission. In accordance with the procedures for amendments and orders, the Commission may incorporate into permits already granted, any condition, restriction, limitation, or provision reasonably necessary for the administration and enforcement of Texas Water Code, Chapters 26 and 27, and Texas Health and Safety Code, Chapter 361.
- C. This permit does not convey any property rights of any sort, nor any exclusive privilege, and does not become a vested right in the permittee.
- D. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of state or local law or regulations.
- E. The following rules are incorporated as terms and conditions of this permit by reference:
  1. 30 TAC Chapter 305, Consolidated Permits;
  2. 30 TAC Chapter 331, Underground Injection Control; and
  3. 30 TAC Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste.
- F. The express incorporation of the above rules as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all other laws or regulations which are applicable to the activities authorized by this permit.

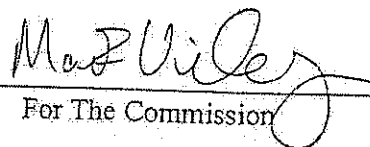
- G. Incorporated Application Materials. This permit is based on, and the permittee shall follow, the plans and specifications contained in the Class I Underground Injection Control Application dated March 25, 2003 as revised on June 5, 2003 and August 12, 2003, and the following amendments and modifications to the permit which are hereby approved subject to the terms of this permit and any other orders of the Texas Commission on Environmental Quality (TCEQ):

Permit Action	Application, Revision or Issuance Date	Description of Change
Major Amendment	Application dated December 13, 2007 and revised on May 6, 2008	Addition of hazardous waste
Major Amendment	Application dated April 13, 2009 and revised August 5, 2009	Change permittee address, increase maximum injection rate and volume and change to a cumulative rate and volume for WDW397 & WDW398

These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission.

- H. The existing pre-injection units are authorized under Texas solid waste registration (SWR) number 87314 for the management of nonhazardous waste only as required by 30 TAC §331.17. For the pre-injection units servicing this well to receive hazardous waste, the pre-injection units must be authorized under a Resource Conservation and Recovery Act (RCRA) permit [30 TAC Chapter 335] or exempt from the requirement for a permit under 30 TAC Section 335.69.
- I. The Texas solid waste registration (SWR) number for this site is 87314.

ISSUED: February 22, 2010

  
For The Commission

Bryan W. Shaw, Ph.D., *Chairman*  
Buddy Garcia, *Commissioner*  
Carlos Rubinstein, *Commissioner*  
Mark R. Vickery, P.G., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

August 13, 2010

91 7108 2133 3934 5684 7378  
CERTIFIED MAIL

Mr. F.E. Buddy Hand, Jr.  
Exxon Mobil Refining & Supply Co.  
Global Remediation  
12450 Greenspoint Drive  
Houston, Texas 77060

Re: Approval of Well Construction and Completion  
WDW398  
RN104151204/CN600123939

Dear Mr. Hand:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the Drilling and Completion Report for WDW398 submitted on December 17, 2009. This letter is to inform you of the TCEQ's approval of construction and completion of WDW398 in accordance with 30 TAC §331.45. This approval is based on staff's review of the well completion report submitted in response to 30 TAC §331.65(a)(1). The TCEQ accepts that the well has been constructed in accordance with submitted plans and specifications. We advise that you consult with United States Environmental Protection Agency (U.S. EPA) Region 6 to determine if there are any additional requirements under the Federal Land Disposal Restrictions prior to placing the well in service.

Written notification of the anticipated well startup date must be received by this office at least 24 hours before commencing injection of waste water (30 TAC §331.65(a)(3)). Your monthly reporting forms are being processed and will be mailed to you soon. Please keep a copy of this letter with the well records for reference by your company's well operators and by the Commission's inspectors.

Please direct any questions or comments to Jan Bates at [jbates@tceq.state.tx.us](mailto:jbates@tceq.state.tx.us) or (512) 239-6627. If you will be responding by letter, please include mail code MC 233 in the mailing address.

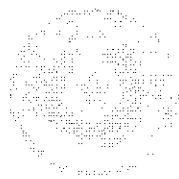
Sincerely,

A handwritten signature in black ink that reads "Fred Duffy for BK".

Ben Knape, P.G., Leader  
Underground Injection Control Permits Team  
Radioactive Materials Division

BK/JJB/nlc

Mr. F. E. Buddy Hand, Jr.  
Page 2  
August 13, 2010



cc: Mr. Thomas P. Grant, III, Terra Dynamics Inc.  
Mr. Jose Torres, EPA Region 6, 6WQ-S  
Mr. Brian Graves, EPA Region 6, 6WQ-SG

Enclosed for Mr. Grant, Mr. Torres, and Mr. Graves are two copies of a letterhead memorandum (LHM) dated and captioned as above. The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices.

The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices.

The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices. The LHM is being provided to you for your information and for your use in your respective offices.

Very truly yours,  
[Signature]  
[Name]  
[Title]

Kathleen Hartnett White, *Chairman*  
Larry R. Soward, *Commissioner*  
Martin A. Hubert, *Commissioner*  
Glenn Shankle, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

December 4, 2006

Mr. F. E. Buddy Hand, Jr.  
Exxon Mobil Corporation  
16945 Northchase Drive  
GP4-533  
Houston, TX 77060

7004 2510 0003 9115 3775

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Re: Approval of Well Construction and Completion  
Well and Permit No. WDW397  
WWC12009746-1; RN10451204/CN600123939

Dear Mr. Hand:

Approval of the above referenced well construction and completion is hereby given in accordance with 30 TAC §§331.45 and 331.65(a)(4). This approval is based on staff's review of the well completion report submitted by the permittee on August 3, 2006, in response to 30 TAC §331.65(a)(1). From this review, it is concluded that the well has been constructed in compliance with permit requirements.

Written notification of the anticipated well startup date must be received by this office at least 24 hours before commencing injection of waste water (30 TAC §331.65(a)(3)). Your monthly reporting forms are being processed and will be mailed to you soon. Please keep a copy of this letter with the well records for reference by your company's well operators and by the Commission's inspectors.

Please direct any questions or comments to Mr. Jim Neeley at (512) 239-5711. If responding by letter, please include mail code MC 130 in the mailing address.

Sincerely,

A handwritten signature in cursive script that reads "Katherine Nelson".

Katherine Nelson, Manager  
Industrial & Hazardous Waste Permits Section  
Waste Permits Division

KN/JN/fp

cc: Mr. Jose Torres, EPA Region 6, 6WQ-S, Dallas  
Mr. Robert Bielenda, Terra Dynamics Inc., Austin





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

January 15, 2009

CERTIFIED MAIL 7007 0710 0002 1385 7219 RETURN RECEIPT REQUESTED

Mr. F. E. Buddy Hand, Jr.  
ExxonMobil Environmental  
Services Company  
16945 Northchase Dr.  
Houston, TX 77060

RE: Exxon Mobil Corporation Final Petition Decision

Dear Mr. Hand:

Effective the date of this letter, the Environmental Protection Agency (EPA) Region 6 approves the No Migration Petition request for ExxonMobil Environmental Services Company (ExxonMobil) exemption to the land disposal restrictions for well WDW-397 at the Agrifos Pasadena Texas Fertilizer facility.

The land disposal restrictions prohibit the injection of hazardous waste unless a petitioner can demonstrate to EPA, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the injection zone for as long as the wastes remain hazardous. The land disposal restrictions for injection wells, codified in 40 CFR Part 148, provide the standards and procedures by which petitions to dispose of an otherwise prohibited waste by injection will be reviewed, and by which exemptions based on these petitions will be granted or denied.

A letter dated November 19, 2008, from Region 6 informed ExxonMobil that EPA was proposing to approve ExxonMobil's petition request for an exemption to the land disposal restrictions. The public comment period associated with this decision began on November 25, 2008, and closed on January 9, 2009. No comments were received.

Based on a detailed review of the submitted petition and support documents, EPA has determined that this information for ExxonMobil's WDW-397 meets the requirements of 40 CFR Part 148 by demonstrating no migration of hazardous constituents from the injection zone for 10,000 years.



The following are conditions of this exemption to the land disposal restrictions:

Petition Approval Conditions

This petition of exemption approval to allow the injection of restricted hazardous wastes is subject to the following conditions, which are necessary to assure that the standard in 40 CFR §148.20(a) is met. Noncompliance with any of these conditions is grounds for termination of the exemption in accordance with 40 CFR §148.24(a)(1). This exemption is applicable to the ExxonMobil injection well, WDW-397, located at the Agrifos Fertilizer Plant in Pasadena, Texas.

1. Injection of restricted waste shall be limited to the following injection zone:

<u>Well</u>	<u>Depth of Injection Zone</u>
WDW-397	5347'-7272' KB

(WDW-397 depths referenced to 3/08/06 High Resolution Array Induction Density Neutron Longspace Sonic Log using KB depths in feet)

The injection interval shall be defined by the following correlative log depths:

<u>Well</u>	<u>Injection Interval</u>	<u>Depth of Injection Interval</u>
WDW-397	Frio D, E&F, and A/B Sands	5922'-7272' KB

(WDW-397 depths referenced to 3/08/06 High Resolution Array Induction Density Neutron Longspace Sonic Log using KB depths in feet)

Injection of restricted waste shall also be limited to completion intervals which are within the defined injection interval and below a depth of 6200' KB

2. For WDW-397, the cumulative monthly volume injected into the Frio D Sand during any given month shall not exceed that calculated by multiplying 140 gpm x 1440 minutes/day x the number of days in that month. For WDW-397, the cumulative monthly volume injected into the Frio E&F Sand shall not exceed that calculated by multiplying 700 gpm x 1440 minutes/day x the number of days in that month. For WDW-397, the cumulative monthly volume injected into the Frio A/B Sand shall not exceed that calculated by multiplying 700 gpm x 1440 minutes/day x the number of days in that month. Additionally the total cumulative monthly wellhead volume for WDW-397 shall not exceed that calculated by multiplying 700 gpm x 1440 minutes/day x the number of days in that month.

3. The facility shall cease injection into WDW-397 by December 31, 2020.

4. The characteristics of the injected waste stream shall for WDW-397 at all times conform to those discussed in Section 6 of the 2008 petition document for WDW-397. The specific gravity of the waste stream for WDW-397 shall remain within a range from 1.00 to 1.05 at 68°F and 1 atmosphere with a reference temperature of 68°F.

5. The approval for injection is limited to the following hazardous wastes:  
D002, D004, D005, D006, D007, D008, D009, D023, D024, D025, D030 and F039 (for the constituents listed in Table 6-3 in the 2008 petition document)



6. The facility must petition for approval to inject additional hazardous wastes which are not included in Condition No. 5, above. The facility must also petition for approval to increase the concentration of any waste which would necessitate the recalculation of the limiting concentration reduction factor and the extent of the waste plume. Petition reissuances and modifications should be made pursuant to 40 CFR §148.20 (e) or (f).

7. For WDW-397, a flow profile, acceptable to the Agency, shall be run annually to confirm flow distribution in the Frio D, E&F, and A/B Sands.

Upon recompletion of this well into any currently uncompleted portion of the injection interval, a flow profile survey, acceptable to the Agency, shall be run to confirm flow distribution in the Frio D, E&F, and A/B Sands.

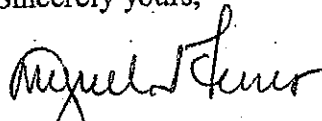
8. ExxonMobil shall annually submit to EPA the results of a bottom hole pressure survey for WDW-397. This survey shall be performed after shutting in the well for a period of time sufficient to allow the pressure in the injection interval to reach equilibrium, in accordance with 40 CFR §146.68(e)(1). The annual report should include a comparison of reservoir parameters determined from the falloff test with parameters used in the approved no migration petition.

9. Upon the expiration, cancellation, reissuance, or modification of the Texas Commission on Environmental Quality's Underground Injection Control permit for Well No. WDW-397, this exemption is subject to review. A new demonstration may be required if information shows that the basis for granting the exemption is no longer valid under 40 CFR §148.23 and §148.24.

In addition to the above conditions, this petition for exemption approval is contingent on the validity of the information submitted in the ExxonMobil petition request for an exemption to the land disposal restrictions. Any final petition decision is subject to termination when any of the conditions occur which are listed in 40 CFR §148.24, including noncompliance, misrepresentation of relevant facts, or a determination that new information shows that the basis for approval is no longer valid.

If you have any questions or comments, please call Philip Dellinger at (214) 665-7150.

Sincerely yours,



Miguel I. Flores  
Division Director  
Water Quality Protection Division

cc: Robert Smith, USEPA OGWDW  
Ben Knape, TCEQ  
Brad Genzer, TCEQ Region 14



512 239 6383



**Texas Commission on  
Environmental Quality**  
Austin, Texas

Permit No.: WDW-397

PERMIT to conduct  
Class I underground injection under provisions of  
Texas Water Code Chapters 26 & 27  
and under provisions of the  
Texas Health and Safety Code Chapter 361

## I. Permittee

Exxon Mobil Corporation  
3225 Gallows Road, Room 8B607  
Fairfax, Virginia 22037

## II. Type of Permit

Initial X Renewal        Amended         
Commercial        Noncommercial X  
Hazardous        Nonhazardous X  
Onsite X Offsite X  
Authorizing Disposal of Waste from Captured Facility         
Authorizing Disposal of Waste from Off-site Facilities Owned by Owner/Operator       

## III. Nature of Business

Disposal of pond water generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant.

CONTINUED on Pages 2 through 6

The permittee is authorized to conduct injection in accordance with limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission, and the laws of the State of Texas. The permit will be in effect for ten years from the date of approval or until amended or revoked by the Commission. If this permit is appealed and the permittee does not commence any action authorized by this permit during judicial review, the term will not begin until judicial review is concluded.

ISSUED: JAN 26 2004

*Margaret Hoffman*  
\_\_\_\_\_  
For The Commission

Received Time Feb. 5. 12:58PM



512 239 6383

Page No. 2

Exxon Mobil Corporation  
WDW-397

IV. General Description and Location of Injection Activity

The disposal well is to be used to dispose of nonhazardous wastes generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant. The well will be located approximately 1,450 feet east of the west line and approximately 25,700 feet north of the south line of the James Seymore Survey, A-698, Latitude 29°44'27" North, Longitude 95°11'23" West, Harris County, Texas. The injection zone is within the Frio Formation at the approximate subsurface depths of 5,325 to 7,250 feet. The authorized injection interval is within the Frio Formation at the approximate subsurface depths of 5,900 to 7,250 feet.

V. Drilling and Completion Requirements

- A. The drilling and completion of the well shall be done in accordance with 30 TAC §331.62, the plans and specifications of the permit application, and the following conditions.
- B. The permittee shall set and cement surface casing to a minimum subsurface depth of 3,250 feet, and long string casing into or through the injection zone in order to properly protect each underground source of drinking water (USDW) or freshwater aquifer.
- C. To protect the ground surface from spills and releases, the base of the wellhead shall be enclosed by a diked, impermeable pad or sump. Any liquid collected shall be disposed of in an appropriate manner.
- D. Mechanical integrity shall be demonstrated prior to authorization by the Executive Director to conduct injection operations.
- E. Any changes to the plans and specifications in the original application shall be approved in writing by the Executive Director that said changes provide protection standards equivalent to or greater than the original design criteria.

VI. Character of the Waste Streams

- A. Industrial nonhazardous waste authorized to be injected by this permit shall consist solely of the following waste streams:
  - 1. Wastes generated during closure of the well and associated facilities that are compatible with permitted wastes, injection zone and the well.
  - 2. Gypsum stack pond water.
  - 3. Other associated wastes such as ground water and rainfall contaminated by the above authorized wastes, spills of the above authorized wastes, and wash waters and solutions used in cleaning and servicing the waste disposal well system equipment which are compatible with the permitted waste streams, injection zone and well materials.



512 239 6383

Page No. 3

Exxon Mobil Corporation  
WDW-397

- B. The injection of wastes is limited to those wastes authorized in Provision VI.A. above, into the Frio Formation within the injection zone between 5,325 to 7,250 feet.
- C. The pH of injected waste streams shall be greater than 1.0 and less than 8.0.
- D. Except when authorized by the Executive Director, the specific gravity of injected fluids shall be greater than or equal to 1.00 and less than or equal to 1.05 as measured at 68°F.

#### VII. Waste Streams Prohibited From Injection

Unless authorized by Provision VI.A., the following waste streams are prohibited. The permittee is also required to comply with all other laws or regulations which are applicable to the activities authorized by this permit.

- A. Hazardous wastes as defined under 40 CFR §261.3(a) through (d), issued pursuant to the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments, which are regulated by the Commission as authorized by the EPA, including but not limited to any listed hazardous waste or a waste derived from the treatment, storage or disposal of a listed hazardous waste;
- B. Any by-product material as defined by Texas Health & Safety Code §401.003(3);
- C. Any low-level radioactive waste as defined by Texas Health & Safety Code §401.004;
- D. Any naturally occurring radioactive material (NORM) waste as defined by Texas Health & Safety Code §401.003(26); and
- E. Any oil and gas NORM waste as defined by Texas Health & Safety Code §401.003(27).

#### VIII. Operating Parameters

- A. The well shall be operated in compliance with the requirements of 30 TAC Chapters 305, 331, and 335; the plans and specifications of the permit application; and the following conditions.
- B. Surface injection pressure shall not cause pressure in the injection zone to:
  - 1. initiate any new fractures or propagate existing fractures in the injection zone;
  - 2. initiate new fractures or propagate existing fractures in the confining zone; or
  - 3. cause movement of fluid out of the injection zone that may contaminate USDWs, and fresh or surface water.
- C. The operating surface injection pressure shall not exceed 1,500 psig.
- D. The maximum injection rate shall not exceed 700 gallons per minute.

Received Time Feb. 5. 12:58PM



512 239 6383

Page No. 4

Exxon Mobil Corporation  
WDW-397

- E. The volume of waste water injected shall not exceed 30,660,000 gallons per month, or 367,920,000 gallons per year.
- F. A positive pressure of at least 100 psig over tubing injection pressures shall be maintained in the tubing-casing annulus for the purpose of leak detection. Temporary deviations from this requirement which are a part of normal well operations are authorized but may not exceed 15 minutes in duration. For 15 minutes after the pressure differential drops below 100 psig, the permittee shall conduct troubleshooting and proceed to restore a minimum 100-psig pressure differential. If a minimum 100-psig pressure differential cannot be achieved within 15 minutes, the permittee shall notify the TCEQ and commence shut-in procedures on the well. The permittee may continue to operate the well under flow conditions that maintain a minimum 100-psig pressure differential.
- G. The permittee shall notify the Executive Director at least 24 hours prior to commencing any workover which involves taking the injection well out of service. Approval by the Executive Director shall be obtained before the permittee may begin work. Notification shall be in writing and shall include plans for the proposed work. The Executive Director may grant an exception to the prior written notification and approval when immediate action is required to prevent pollution according to 30 TAC §331.5. Completion of the well outside the approved injection interval, by perforation of casing, setting of screen, or establishment of open hole section, requires that the permitted injection interval be changed according to 30 TAC §331.62(3)(B) to include the depths of all well completion. Pressure control equipment shall be installed and maintained during workovers which involve the removal of tubing.

IX. Monitoring and Testing Requirements

- A. Monitoring and testing shall be in compliance with the requirements of 30 TAC §305.125, §331.64, the plans and specifications of the permit application, and the following conditions.
- B. The integrity of the long string casing, injection tubing, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover. The integrity of the cement within the injection zone shall be tested by means of an approved radioactive tracer survey annually. A radioactive tracer survey may be required after workovers that have the potential to damage the cement within the injection zone.
- C. The pressure buildup in the injection zone shall be monitored annually, including at a minimum, a shutdown of the well for a sufficient time to conduct a valid observation of the pressure fall-off curve.
- D. A temperature log, noise log, oxygen activation log or other approved log is required at least once every five years to test for fluid movement along the entire borehole.
- E. A casing inspection, casing evaluation, or other approved log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Executive Director waives this requirement due to well construction or other factors which



512 239 6383

Page No. 5

Exxon Mobil Corporation  
WDW-397

limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Executive Director may require that a casing inspection log be run every five years if there is sufficient reason to believe the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.

F. Injection fluids shall be tested in accordance with 30 TAC §331.64(a) and the approved waste analysis plan.

G. The pH and specific gravity of the injected waste shall be monitored continuously at a minimum frequency of at least once every 24 hours.

H. Corrosion monitoring of well materials shall be conducted quarterly and in accordance with 30 TAC §331.64(f). Test materials shall be the same as those used in the wellhead, injection tubing, packer, and long string casing, and shall be continuously exposed to the waste fluids except when the well is taken out of service.

X. Record Keeping Requirements

The permittee shall keep complete and accurate records as required by 30 TAC Chapters 305, 331, and 335.

XI. Financial Assurance for Well Closure

In accordance with 30 TAC Chapter 37, 30 TAC Section 305.154(a)(9), and Sections 331.142-144, the permittee shall secure and maintain financial assurance, in a form approved by the executive director, in the amount of \$153,300 in 2002 dollars. Adjustments to the cost estimates for plugging and abandonment in current dollars, and to financial assurance based thereon, shall be made in accordance with 30 TAC Chapter 37. Financial assurance shall be obtained at least 60 days prior to the commencement of drilling of the well.

XII. Additional Requirements

A. Acceptance of this permit by the permittee constitutes an acknowledgment and agreement that the permittee will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.

B. This permit is subject to further orders and rules of the Commission. In accordance with the procedures for amendments and orders, the Commission may incorporate into permits already granted, any condition, restriction, limitation, or provision reasonably necessary for the administration and enforcement of Texas Water Code, Chapters 26 and 27, and Texas Health and Safety Code, Chapter 361.

C. This permit does not convey any property rights of any sort, nor any exclusive privilege, and does not become a vested right in the permittee.



512 239 6383

Page.No. 6

Exxon Mobil Corporation  
WDW-397

- D. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of state or local law or regulations.
- E. The following rules are incorporated as terms and conditions of this permit by reference:
1. Consolidated Permits  
30 TAC Chapter 305;
  2. Underground Injection Control,  
30 TAC Chapter 331; and
  3. Industrial Solid Waste and Municipal Hazardous Waste,  
30 TAC Chapter 335.
- F. The express incorporation of the above rules as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all other laws or regulations which are applicable to the activities authorized by this permit.
- G. This permit is based on, and the permittee shall follow the plans and specifications contained in the Class I Underground Injection Control Application, dated March 25, 2003 as revised on June 5, 2003 and August 12, 2003, which is hereby approved subject to the terms of this permit and any other orders of the TCEQ. These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission.
- H. The express incorporation of the above-cited permit application as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all laws or regulations which are applicable to the activities authorized by this permit.
- I. This injection well shall not be operated until and unless the pre-injection units supporting the operation of the well have been permitted or registered in accordance with 30 TAC §331.17.



Kathleen Hartnett White, *Chairman*  
Larry R. Soward, *Commissioner*  
Martin A. Hubert, *Commissioner*  
Glenn Shankle, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

December 4, 2006

Mr. F. E. Buddy Hand, Jr.  
Exxon Mobil Corporation  
16945 Northchase Drive  
GP4-533  
Houston, TX 77060

7004 2510 0003 9115 3775

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Re: Approval of Well Construction and Completion  
Well and Permit No. WDW397  
WWC12009746-1; RN10451204/CN600123939

Dear Mr. Hand:

Approval of the above referenced well construction and completion is hereby given in accordance with 30 TAC §§331.45 and 331.65(a)(4). This approval is based on staff's review of the well completion report submitted by the permittee on August 3, 2006, in response to 30 TAC §331.65(a)(1). From this review, it is concluded that the well has been constructed in compliance with permit requirements.

Written notification of the anticipated well startup date must be received by this office at least 24 hours before commencing injection of waste water (30 TAC §331.65(a)(3)). Your monthly reporting forms are being processed and will be mailed to you soon. Please keep a copy of this letter with the well records for reference by your company's well operators and by the Commission's inspectors.

Please direct any questions or comments to Mr. Jim Neeley at (512) 239-5711. If responding by letter, please include mail code MC 130 in the mailing address.

Sincerely,

A handwritten signature in cursive script that reads "Katherine Nelson".

Katherine Nelson, Manager  
Industrial & Hazardous Waste Permits Section  
Waste Permits Division

KN/JN/fp

cc: Mr. Jose Torres, EPA Region 6, 6WQ-S, Dallas  
Mr. Robert Bielenda, Terra Dynamics Inc., Austin



Kathleen Hartnett White, *Chairman*  
Larry R. Soward, *Commissioner*  
Glenn Shankle, *Executive Director*

## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

March 23, 2007

Mr. F. E. Hand  
Exxon Mobil Refining & Supply Co.  
16825 Northchase Drive  
Houston, Texas 77060

RE: Exxon Mobil Corporation  
UIC Permit No. WD 7397

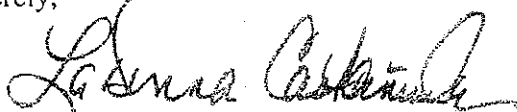
This letter is your notice that the Texas Commission on Environmental Quality (TCEQ) executive director has issued final approval of the above-named application.

You may file a **motion to overturn** with the chief clerk. A motion to overturn is a request for the commission to review the TCEQ executive director's approval of the application. Any motion must explain why the commission should review the TCEQ executive director's action.

A motion to overturn must be received by the chief clerk within 23 days after the date of this letter. An original and 11 copies of a motion must be filed with the chief clerk in person or by mail. The Chief Clerk's mailing address is Office of the Chief Clerk (MC 105), TCEQ, P.O. Box 13087, Austin, Texas 78711-3087. On the same day the motion is transmitted to the chief clerk, please provide copies to Robert Martinez, Director of the Environmental Law Division (MC 173), and Blas Coy, Public Interest Counsel (MC 103), both at the same TCEQ address listed above. If a motion is not acted on by the commission within 45 days after the date of this letter, then the motion shall be deemed overruled.

Individual members of the public may seek further information by calling the TCEQ Office of Public Assistance, toll free, at 1-800-687-4040.

Sincerely,



LaDonna Castañuela  
Chief Clerk

LDC/ec

cc: Blas Coy, TCEQ Public Interest Counsel (MC 103)



Kathleen Hartnett White, *Chairman*  
Larry R. Soward, *Commissioner*  
Martin A. Hubert, *Commissioner*  
Glenn Shankle, *Executive Director*

## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

March 23, 2007

Mr. F.E. Hand  
Exxon Mobil Refining & Supply Co.  
Global Remediation  
16825 Northchase Drive  
Houston, TX 77060

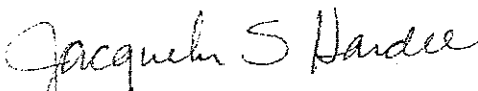
Re: Transmittal of Underground Injection Control Major Amendment  
WDW397  
RN101621944 / CN600123939

Dear Mr. Hand:

Enclosed are copies of the above-referenced underground injection well major amendment issued pursuant to the Texas Water Code, Chapter 27 and the Texas Health and Safety Code, Chapter 361. Questions should be directed to Mr. John Santos at of the Industrial & Hazardous Waste Permits Section at (512) 239-1030 or [jsantos@tceq.state.tx.us](mailto:jsantos@tceq.state.tx.us). If corresponding by letter, please include mail code MC 130 in the mailing address.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,



Jacqueline S. Hardee, P.E., Director  
Waste Permits Division

JSH/JJS/fp

cc: Mr. Jose Torres, EPA Region 6, 6WQ-S  
Mr. Terry Moody, Terra Dynamics, Inc. (with enclosure)

Enclosures





MAJOR AMENDMENT OF  
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
CLASS I UIC PERMIT WDW397

ISSUED ON JANUARY 26, 2004 TO  
EXXON MOBIL CORPORATION

Class I UIC Permit WDW397 is hereby amended as follows:

In Section VIII.D.

"The maximum injection rate shall not exceed 700 gallons per minute."

is replaced with

"The maximum injection rate shall not exceed 1200 gallons per minute."

In Section VIII.E.

"The volume of waste water injected shall not exceed 30,660,000 gallons per month, or 367,920,000 gallons per year."

is replaced with

"The volume of waste water injected shall not exceed 52,560,000 gallons per month, or 630,720,000 gallons per year."

In Section XII.G

"This permit is based on, and the permittee shall follow the plans and specifications contained in the Class I Underground Injection Control Application, dated March 25, 2003 as revised on June 5, 2003, August 12, 2003, and December 20, 2005, which is hereby approved subject to the terms of this permit and any other orders of the TCEQ. These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission."

is replaced with

"This permit is based on, and the permittee shall follow the plans and specifications contained in the Class I Underground Injection Control Application, dated March 25, 2003 as revised on June 5, 2003, August 12, 2003, December 20, 2005, July 24, 2006 and, September 9, 2006 which is hereby approved subject to the terms of this permit and any other orders of the TCEQ. These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission."



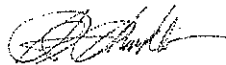
Class I UIC Permit WDW397  
Major Amendment

Page 2

This document is part of the permit and should be attached thereto.

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code §805.02.

ISSUED DATE: **MAR 21 2007**

A handwritten signature in dark ink, appearing to be "D. H. Smith", written over a horizontal line.

For The Commission



512 239 6383



**Texas Commission on  
Environmental Quality**  
Austin, Texas

Permit No.: WDW-398

PERMIT to conduct  
Class I underground injection under provisions of  
Texas Water Code Chapters 26 & 27  
and under provisions of the  
Texas Health and Safety Code Chapter 361

## I. Permittee

Exxon Mobil Corporation  
3225 Gallows Road, Room 8B607  
Fairfax, Virginia 22037

## II. Type of Permit

Initial X Renewal        Amended         
Commercial        Noncommercial X  
Hazardous        Nonhazardous X  
Onsite X Offsite X  
Authorizing Disposal of Waste from Captured Facility         
Authorizing Disposal of Waste from Off-site Facilities Owned by Owner/Operator       

## III. Nature of Business

Disposal of pond water generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant.

CONTINUED on Pages 2 through 6

The permittee is authorized to conduct injection in accordance with limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission, and the laws of the State of Texas. The permit will be in effect for ten years from the date of approval or until amended or revoked by the Commission. If this permit is appealed and the permittee does not commence any action authorized by this permit during judicial review, the term will not begin until judicial review is concluded.

A handwritten signature in cursive script, appearing to read "Margaret Hoffman".

For The Commission

ISSUED: JAN 26 2004

Received Time Feb. 5. 12:58PM



512 239 6383

Page No. 2

Exxon Mobil Corporation  
WDW-398

#### IV. General Description and Location of Injection Activity

The disposal well is to be used to dispose of nonhazardous wastes generated during the closure of gypsum stacks at the Pasadena Fertilizer Plant. The well will be located approximately 1,200 feet west of the east line and approximately 16,600 feet north of the south line of the William Vince Survey, A-78, Latitude 29°44'12" North, Longitude 95°11'53" West, Harris County, Texas. The injection zone is within the Frio Formation at the approximate subsurface depths of 5,325 to 7,250 feet. The authorized injection interval is within the Frio Formation at the approximate subsurface depths of 5,900 to 7,250 feet.

#### V. Drilling and Completion Requirements

- A. The drilling and completion of the well shall be done in accordance with 30 TAC §331.62, the plans and specifications of the permit application, and the following conditions.
- B. The permittee shall set and cement surface casing to a minimum subsurface depth of 3,250 feet, and long string casing into or through the injection zone in order to properly protect each underground source of drinking water (USDW) or freshwater aquifer.
- C. To protect the ground surface from spills and releases, the base of the wellhead shall be enclosed by a diked, impermeable pad or sump. Any liquid collected shall be disposed of in an appropriate manner.
- D. Mechanical integrity shall be demonstrated prior to authorization by the Executive Director to conduct injection operations.
- E. Any changes to the plans and specifications in the original application shall be approved in writing by the Executive Director that said changes provide protection standards equivalent to or greater than the original design criteria.

#### VI. Character of the Waste Streams

- A. Industrial nonhazardous waste authorized to be injected by this permit shall consist solely of the following waste streams:
  - 1. Wastes generated during closure of the well and associated facilities that are compatible with permitted wastes, injection zone and the well.
  - 2. Gypsum stack pond water.
  - 3. Other associated wastes such as ground water and rainfall contaminated by the above authorized wastes, spills of the above authorized wastes, and wash waters and solutions used in cleaning and servicing the waste disposal well system equipment which are compatible with the permitted waste streams, injection zone and well materials.



512 239 6383

Page No. 3

Exxon Mobil Corporation  
WDW-398

- B. The injection of wastes is limited to those wastes authorized in Provision VI.A. above, into the Frio Formation within the injection zone between 5,325 to 7,250 feet.
- C. The pH of injected waste streams shall be greater than 1.0 and less than 8.0.
- D. Except when authorized by the Executive Director, the specific gravity of injected fluids shall be greater than or equal to 1.00 and less than or equal to 1.05 as measured at 68°F.

#### VII. Waste Streams Prohibited From Injection

Unless authorized by Provision VI.A., the following waste streams are prohibited. The permittee is also required to comply with all other laws or regulations which are applicable to the activities authorized by this permit.

- A. Hazardous wastes as defined under 40 CFR §261.3(a) through (d), issued pursuant to the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments, which are regulated by the Commission as authorized by the EPA, including but not limited to any listed hazardous waste or a waste derived from the treatment, storage or disposal of a listed hazardous waste;
- B. Any by-product material as defined by Texas Health & Safety Code §401.003(3);
- C. Any low-level radioactive waste as defined by Texas Health & Safety Code §401.004;
- D. Any naturally occurring radioactive material (NORM) waste as defined by Texas Health & Safety Code §401.003(26); and
- E. Any oil and gas NORM waste as defined by Texas Health & Safety Code §401.003(27).

#### VIII. Operating Parameters

- A. The well shall be operated in compliance with the requirements of 30 TAC Chapters 305, 331, and 335; the plans and specifications of the permit application; and the following conditions.
- B. Surface injection pressure shall not cause pressure in the injection zone to:
  - 1. initiate any new fractures or propagate existing fractures in the injection zone;
  - 2. initiate new fractures or propagate existing fractures in the confining zone; or
  - 3. cause movement of fluid out of the injection zone that may contaminate USDWs, and fresh or surface water.
- C. The operating surface injection pressure shall not exceed 1,500 psig.
- D. The maximum injection rate shall not exceed 700 gallons per minute.

Received Time Feb. 5. 12:58PM



512 239 6383

Page No. 4

Exxon Mobil Corporation  
WDW-398

- E. The volume of waste water injected shall not exceed 30,660,000 gallons per month, or 367,920,000 gallons per year.
- F. A positive pressure of at least 100 psig over tubing injection pressures shall be maintained in the tubing-casing annulus for the purpose of leak detection. Temporary deviations from this requirement which are a part of normal well operations are authorized but may not exceed 15 minutes in duration. For 15 minutes after the pressure differential drops below 100 psig, the permittee shall conduct troubleshooting and proceed to restore a minimum 100-psig pressure differential. If a minimum 100-psig pressure differential cannot be achieved within 15 minutes, the permittee shall notify the TCEQ and commence shut-in procedures on the well. The permittee may continue to operate the well under flow conditions that maintain a minimum 100-psig pressure differential.
- G. The permittee shall notify the Executive Director at least 24 hours prior to commencing any workover which involves taking the injection well out of service. Approval by the Executive Director shall be obtained before the permittee may begin work. Notification shall be in writing and shall include plans for the proposed work. The Executive Director may grant an exception to the prior written notification and approval when immediate action is required to prevent pollution according to 30 TAC §331.5. Completion of the well outside the approved injection interval, by perforation of casing, setting of screen, or establishment of open hole section, requires that the permitted injection interval be changed according to 30 TAC §331.62(3)(B) to include the depths of all well completion. Pressure control equipment shall be installed and maintained during workovers which involve the removal of tubing.

IX. Monitoring and Testing Requirements

- A. Monitoring and testing shall be in compliance with the requirements of 30 TAC §305.125, §331.64, the plans and specifications of the permit application, and the following conditions.
- B. The integrity of the long string casing, injection tubing, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover. The integrity of the cement within the injection zone shall be tested by means of an approved radioactive tracer survey annually. A radioactive tracer survey may be required after workovers that have the potential to damage the cement within the injection zone.
- C. The pressure buildup in the injection zone shall be monitored annually, including at a minimum, a shutdown of the well for a sufficient time to conduct a valid observation of the pressure fall-off curve.
- D. A temperature log, noise log, oxygen activation log or other approved log is required at least once every five years to test for fluid movement along the entire borehole.
- E. A casing inspection, casing evaluation, or other approved log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Executive Director waives this requirement due to well construction or other factors which



512 239 6383

Page No. 5

Exxon Mobil Corporation  
WDW-398

limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Executive Director may require that a casing inspection log be run every five years if there is sufficient reason to believe the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.

- F. Injection fluids shall be tested in accordance with 30 TAC §331.64(a) and the approved waste analysis plan.
- G. The pH and specific gravity of the injected waste shall be monitored continuously at a minimum frequency of at least once every 24 hours.
- H. Corrosion monitoring of well materials shall be conducted quarterly and in accordance with 30 TAC §331.64(f). Test materials shall be the same as those used in the wellhead, injection tubing, packer, and long string casing, and shall be continuously exposed to the waste fluids except when the well is taken out of service.
- X. Record Keeping Requirements
- The permittee shall keep complete and accurate records as required by 30 TAC Chapters 305, 331, and 335.
- XI. Financial Assurance for Well Closure
- In accordance with 30 TAC Chapter 37, 30 TAC Section 305.154(a)(9), and Sections 331.142-144, the permittee shall secure and maintain financial assurance, in a form approved by the executive director, in the amount of \$153,300 in 2002 dollars. Adjustments to the cost estimates for plugging and abandonment in current dollars, and to financial assurance based thereon, shall be made in accordance with 30 TAC Chapter 37. Financial assurance shall be obtained at least 60 days prior to the commencement of drilling of the well.
- XII. Additional Requirements
- A. Acceptance of this permit by the permittee constitutes an acknowledgment and agreement that the permittee will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- B. This permit is subject to further orders and rules of the Commission. In accordance with the procedures for amendments and orders, the Commission may incorporate into permits already granted, any condition, restriction, limitation, or provision reasonably necessary for the administration and enforcement of Texas Water Code, Chapters 26 and 27, and Texas Health and Safety Code, Chapter 361.
- C. This permit does not convey any property rights of any sort, nor any exclusive privilege, and does not become a vested right in the permittee.



512 239 6383

Page No. 6

Exxon Mobil Corporation  
WDW-398

- D. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of state or local law or regulations.
- E. The following rules are incorporated as terms and conditions of this permit by reference:
1. Consolidated Permits  
30 TAC Chapter 305;
  2. Underground Injection Control,  
30 TAC Chapter 331; and
  3. Industrial Solid Waste and Municipal Hazardous Waste,  
30 TAC Chapter 335.
- F. The express incorporation of the above rules as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all other laws or regulations which are applicable to the activities authorized by this permit.
- G. This permit is based on, and the permittee shall follow the plans and specifications contained in the Class I Underground Injection Control Application, dated March 25, 2003 as revised on June 5, 2003 and August 12, 2003, which is hereby approved subject to the terms of this permit and any other orders of the TCEQ. These materials are incorporated into this permit by reference as if fully set out herein. Any and all revisions to these elements shall become conditions of this permit upon the date of approval by the Commission.
- H. The express incorporation of the above-cited permit application as terms and conditions of this permit does not relieve the permittee of an obligation to comply with all laws or regulations which are applicable to the activities authorized by this permit.
- I. This injection well shall not be operated until and unless the pre-injection units supporting the operation of the well have been permitted or registered in accordance with 30 TAC §331.17.

